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Merchant & Gould P.C.
P.O. Box 2903
Minneapolis, MN 55402-0903

EXAMINER

RUTHKOSKY, MARK

ART UNIT	PAPER NUMBER
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1745

DATE MAILED: 03/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/866,180

Applicant(s)

MATSUMOTO, ISAO

Examiner

Mark Ruthkosky

Art Unit

1745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 November 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 12-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☒ Claim(s) 1-3 and 8-11 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 11/18/2004 has been entered.

Election/Restrictions

Claims 12-20 stand in the application as non-elected and withdrawn.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The amended claim adds the limitation "said positive and/or said negative electrodes are adjusted by combining lighter weight electrode plates with heavier weight electrode plates to comprise an electrode weight closer to the average weight value for a plurality of positive and/or negative electrodes than unadjusted positive and/or negative electrodes." The plates are combined to comprise an electrode weight closer to the average weight value for a

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plurality of electrodes. This limitation is indefinite as the adjusting and combining step is claimed to choose a value that is the average weight value for the plurality of electrodes, however the average value depends on the adjusting and combining step. From this resultant weight is needed to determine the starting weights even though the starting weights are needed to determine the average weight. Thus, one of ordinary skill in the art has no means to determine the weights to choose.

Claims 1-11 are rejected because the claims do not include an appropriate transitional phrase such as comprising or "consisting essentially of". Due to this, the examiner cannot determine what elements of the claim constitute the preamble of the claim and the body of the claim. For example in claim 1, the claim is to "Spirally-rolled electrodes for batteries having a concentric circle shape or an elliptical shape with positive electrodes, negative electrodes and a separator therebetween...." The transitional phrase may be "with" or it may be "having."

The transitional phrases "comprising", "consisting essentially of" and "consisting of" define the scope of a claim with respect to what unrecited additional components or steps, if any, are excluded from the scope of the claim. The transitional term "comprising", which is synonymous with "including," "containing," or "characterized by," is inclusive or open-ended and does not exclude additional, unrecited elements or method steps. See, e.g., > *Invitrogen Corp. v. Biocrest Mfg., L.P.*, 327 F.3d 1364, 1368, 66 USPQ2d 1631, 1634 (Fed. Cir. 2003); ("The transition comprising' in a method claim indicates that the claim is open-ended and allows for additional steps.");< *Genentech, Inc. v. Chiron Corp.*, 112 F.3d 495, 501, 42 USPQ2d 1608, 1613 (Fed. Cir. 1997) ("Comprising" is a term of art used in claim language which means that the named elements are essential, but other elements may be added and still form a construct

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within the scope of the claim.); *Moleculon Research Corp. v. CBS, Inc.*, 793 F.2d 1261, 229 USPQ 805 (Fed. Cir. 1986); *In re Baxter*, 656 F.2d 679, 686, 210 USPQ 795, 803 (CCPA 1981); *Ex parte Davis*, 80 USPQ 448, 450 (Bd. App. 1948) ("comprising" leaves "the claim open for the inclusion of unspecified ingredients even in major amounts"). (MPEP 2011.02)

Appropriate correction is required.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-3 and 8-11 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. "and said positive and/or said negative electrodes are adjusted by combining lighter weight electrode plates with heavier weight electrode plates to comprise an electrode weight closer to the average weight value for a plurality of positive and/or negative electrodes than unadjusted positive and/or negative electrodes." The applicant has cited pages 13-14 of the original specification as support for this amendment. The specification states that two electrodes are selected and combined that their weight be substantially constant or close to the average weight value. It further notes that the electrode can be adjusted to have a weight of each electrode close to the average weight and that the total active material weight is adjusted to be substantially constant.

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The specification does not teach positive and/or said negative electrodes are adjusted by combining lighter weight electrode plates with heavier weight electrode plates.

New Matter

The amendment filed 11/118/2004 is objected to under 35 U.S.C. 132 because it introduces new matter into the disclosure. 35 U.S.C. 132 states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows. The addition of the limitation, "and said positive and/or said negative electrodes are adjusted by combining lighter weight electrode plates with heavier weight electrode plates to comprise an electrode weight closer to the average weight value for a plurality of positive and/or negative electrodes than unadjusted positive and/or negative electrodes" is not supported in the original disclosure. The specification does not disclose positive and/or said negative electrodes are adjusted by combining lighter weight electrode plates with heavier weight electrode plates. The applicant has cited pages 13-14 of the original specification as support for this amendment. The specification states that two electrodes are selected and combined that their weight be substantially constant or close to the average weight value. It further notes that the electrode can be adjusted to have a weight of each electrode close to the average weight and that the total active material weight is adjusted to be substantially constant. The specification does not teach positive and/or said negative electrodes are adjusted by combining lighter weight electrode plates with heavier weight electrode plates.

Applicant is required to cancel the new matter in the reply to this Office Action.

Claim Rejections - 35 USC § 102

The rejection of claims 1-2 and 8 under 35 U.S.C. 102(e) as being anticipated by Kitoh et al. (US 6,258,487 B1) has been overcome by the applicant's amendment.

The rejection of claims 1-2 and 8 under 35 U.S.C. 102(b) as being anticipated by Nagura et al. (US 5,534,369) has been overcome by the applicant's amendment.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The instant claims are to spiral-rolled electrodes for batteries having a concentric circle shape or elliptical shape including a positive electrode, a negative electrode and a separator therebetween. The positive and/or negative electrode comprises combinations of plural electrode plates selected from groups of plates classified by weight to provide a desired battery capacity. Each combination of plates in the positive and/or negative electrode has a substantially constant total amount of active or pseudo active material and the positive and/or said negative electrodes are adjusted by combining lighter weight electrode plates with heavier weight electrode plates to comprise an electrode weight closer to the average weight value for a plurality of positive and/or negative electrodes than unadjusted positive and/or negative electrodes. Each electrode plate in

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the electrode is wound in series with an interval between each plate. Each of the electrode plates has at least two chamfered corners.

Claims 1, 2, and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kitoh et al. (US 6,258,487 B1) in view of Nagaura et al. (US 5,534,369.)

Kitoh et al. (US 6,258,487 B1) teaches a battery including spiral-rolled electrodes with a divided electrode base plate. The battery has a concentric circle shape or elliptical shape and includes a positive electrode, a negative electrode and a separator there between. The combination of plates has a substantially constant amount of active or pseudo active material as one electrode is prepared and divided into equivalent sections (col. 7, lines 1-15.) The electrodes inherently are selected and have an individual weight. With regard to the process of selecting the plates, the limitation has been considered, but is not given patentable weight, as it does not define the claimed product. The electrodes are wound into a battery. Each segment it taught to have a lead (col. 5, lines 20-35.) Kitoh et al. (US 6,258,487 B1) does not teach electrode plates having at least two chamfered corners, however does teach that the divided electrodes could have various shapes (col. 5, lines 12-26.)

Nagura et al. (US 5,534,369) teaches a battery including spiral-rolled electrodes with a divided electrode base plate. The battery has a concentric circle shape or elliptical shape and includes a positive electrode, a negative electrode and a separator there between (see col. 5 and figures 4-7.) The electrode has four chamfered corners. It would be obvious to one of ordinary skill in the art at the time the invention was made to include chamfered corners on an electrode in order to alter the shape of the electrode plate or the corner of the electrode to have a chamfered shape as taught by Nagura. Rounded corners are known in the art to facilitate the introduction of

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electrode ends into gives and rollers used to form a cylindrical battery. The artisan would have found the claimed invention to be obvious in light of the teachings of the references.

Claims 1-3 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kaido et al. (US 6,284,405) in view of Nagura et al. (US 5,534,369.)

Kaido et al. (US 6,284,405) teaches a battery including spiral-rolled electrodes with a divided electrode base plate. The battery has a concentric circle shape or elliptical shape and includes a positive electrode, a negative electrode and a separator there between. The plate includes a conductive plate with an active material coated onto sections of the plate in a manner to leave an uncoated area along an edge of the plate and at predetermined intervals in a winding direction (claims 1-31 and the figures.) The uncoated edge area is used to attach a conductive tab plate in order to transfer charge. The reference does not teach electrode plates having at least two chamfered corners.

Nagura et al. (US 5,534,369) teaches a battery including spiral-rolled electrodes with a divided electrode base plate. The battery has a concentric circle shape or elliptical shape and includes a positive electrode, a negative electrode and a separator there between (see col. 5 and figures 4-7.) The electrode has four chamfered corners. It would be obvious to one of ordinary skill in the art at the time the invention was made to include chamfered corners on an electrode in order to alter the shape of the electrode plate or the corner of the electrode to have a chamfered shape as taught by Nagura. Rounded corners are known in the art to facilitate the introduction of electrode ends into gives and rollers used to form a cylindrical battery. The artisan would have found the claimed invention to be obvious in light of the teachings of the references.

Claims 1, 2, and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kitoh et al. (US 6,258,487 B1), in view of Webb et al. (US 6,300,002.)

Kitoh et al. (US 6,258,487 B1) teaches a battery including spiral-rolled electrodes with a divided electrode base plate. The battery has a concentric circle shape or elliptical shape and includes a positive electrode, a negative electrode and a separator there between. The combination of plates has a substantially constant amount of active or pseudo active material as one electrode is prepared and divided into equivalent sections (col. 7, lines 1-15.) The electrodes inherently are selected and have an individual weight. With regard to the process of selecting the plates, the limitation has been considered, but is not given patentable weight, as it does not define the claimed product. The electrodes are wound into a battery. Each segment is taught to have a lead (col. 5, lines 20-35.) Kitoh et al. (US 6,258,487 B1) does not teach electrode plates having at least two chamfered corners, however does teach that the divided electrodes could have various shapes (col. 5, lines 12-26.)

Webb et al. (US 6,300,002) teaches a battery including spiral-rolled electrodes with a divided electrode base plate. The battery has a concentric circle shape or elliptical shape and includes a positive electrode, a negative electrode and a separator there between. The electrodes have four chamfered corners. It would be obvious to one of ordinary skill in the art at the time the invention was made to include chamfered corners on an electrode in order to alter the shape of the electrode plate or the corner of the electrode to have a chamfered shape as taught by Webb. Rounded corners are known in the art to facilitate the introduction of electrode ends into

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gives and rollers used to form a cylindrical battery (col. 4, lines 1-30.) The artisan would have found the claimed invention to be obvious in light of the teachings of the references.

Claims 1-3 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kaido et al. (US 6,284,405) in view of Webb et al. (US 6,300,002.)

Kaido et al. (US 6,284,405) teaches a battery including spiral-rolled electrodes with a divided electrode base plate. The battery has a concentric circle shape or elliptical shape and includes a positive electrode, a negative electrode and a separator there between. The plate includes a conductive plate with an active material coated onto sections of the plate in a manner to leave an uncoated area along an edge of the plate and at predetermined intervals in a winding direction (claims 1-31 and the figures.) The uncoated edge area is used to attach a conductive tab plate in order to transfer charge. The reference does not teach electrode plates having at least two chamfered corners.

Webb et al. (US 6,300,002) teaches a battery including spiral-rolled electrodes with a divided electrode base plate. The battery has a concentric circle shape or elliptical shape and includes a positive electrode, a negative electrode and a separator there between. The electrodes have four chamfered corners. It would be obvious to one of ordinary skill in the art at the time the invention was made to include chamfered corners on an electrode in order to alter the shape of the electrode plate or the corner of the electrode to have a chamfered shape as taught by Webb. Rounded corners are known in the art to facilitate the introduction of electrode ends into gives and rollers used to form a cylindrical battery (col. 4.) The artisan would have found the claimed invention to be obvious in light of the teachings of the references.

Claims 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kitoh et al. (US 6,258,487 B1) OR Kaido et al. (US 6,284,405), in view of Nagura et al. (US 5,534,369) OR Webb et al. (US 6,300,002), as applied above, and further in view of Nakai et al. (JP 60-180,058.)

Kitoh et al. (US 6,258,487 B1) and Kaido et al. (US 6,284,405) teach a battery including spiral-rolled electrodes with a divided electrode base plate as previously described. Chamfered corners are noted in the previous rejections, as noted. The references are silent to the dimensions of the sidewalls and bottom of the battery case. Nakai et al. (JP 60-180,058, abstract), however, teaches a cylindrical battery container wherein the thickness of the sidewalls of the case is made to be more thin than the thickness of the bottom of the container. The ratio of the thickness of the bottom to the sidewalls is greater than 1.5. The thicker part is at the border of the sidewall and the case as well as along the entire bottom of the case. It would be obvious to one of ordinary skill in the art at the time the invention was made to make the thickness of the sidewalls of the case of Kitoh et al. (US 6,258,487 B1) OR Kaido et al. (US 6,284,405) to be more thin than the thickness of the bottom of the container in a ratio of greater than 1.5. The resultant can allows for a durable casing and will improve the battery characteristics by increasing the inner diameter and volume of the can thus allowing for more active material and a higher capacity. The artisan would have found the claimed invention to be obvious in light of the teachings of the references.

With regard to claim 11, the reference does not teach a battery wherein the adjacent positive terminal of the battery is welded by a metallic connector to the bottom of the adjacent

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battery case. Connecting batteries in series is broadly known in the art to increase the voltage of a battery. It would be obvious to one of ordinary skill in the art at the time the invention was made to weld a connector between two adjacent batteries in order to allow for a connection in series. Welding the connector will provide a secure connection to the terminals, which will allow for the transfer of electrons.

Allowable Subject Matter

Claims 4-7 include allowable subject matter.

The following is an examiner's statement of reasons for indicating allowable subject matter. The instant claims are to spiral-rolled electrodes for batteries having a concentric circle shape or elliptical shape including a thin nickel positive electrode, a thin metal hydride negative electrode and a separator wound in between. The positive and negative electrodes comprise a combination of plural electrode plates wound in series in order. Each combination of plates has a substantially constant amount of active or pseudo active material. Each electrode plate in the electrode is wound in series with an interval between each plate. The thickness of the electrode at the side where the winding starts is thinner than the thickness of the electrode at the side where the winding ends. The prior art does not teach a nickel metal hydride battery where the positive and negative electrodes comprises a combination of plural electrode plates wound in series in order; each electrode plate in the electrode is wound in series with an interval between each plate; and thickness of the electrode at the side where the winding starts is thinner than the thickness of the electrode at the side where the winding ends.

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Wound batteries with separated electrode plates are well described in the art as noted by Kitoh et al. (US 6,258,487 B1) and Nagura et al. (US 5,534,369) as applied. The references do not teach batteries including a thin nickel positive electrode, a thin metal hydride negative electrode and a separator wound in between or that the thickness of the electrode at the side where the winding starts is thinner than the thickness of the electrode at the side where the winding ends. As such, the claims are allowed.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Response to Arguments

Applicant's arguments filed 1/18/2004 have been fully considered but they are not persuasive. With regard to the rejections under 35 U.S.C. 102 and 103, the arguments have been considered. The rejections under 35 U.S.C. 102 and 103 have been overcome by the applicant's amendment. New rejections based on the amended claims are presented.

With regard to the applicant's arguments that the limitation that the groups are selected from among groups of plates classified by weight is not met by the art, the examiner has noted that the reference inherently selects electrodes. The process of making or choosing the electrodes does not further define the electrode or battery, as the battery is a product. The battery includes electrodes. Thus, including the electrodes/plate in the battery constitutes plates selected that give a capacity. Choosing an electrode will meet the requirements of the amended claim. If

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the process of selecting the plates is considered part of the invention, MPEP 2113 states, "Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process."

See the following section for remarks based on the arguments with regard to the declaration submitted in 10/2004.

Response to Amendment

The declaration under 37 CFR 1.132 filed 10/2/2004 is insufficient to overcome the rejection of claims 1-11 based upon the rejections as set forth in the last Office action because the declaration does not specifically describe the batteries and electrodes used in the experiments in order to make a reasonable comparison. For example, the electrode active materials are not disclosed for the instant invention and the references. Further, the declaration relies on information in two figures that are not readable. Thus, the information cannot be analyzed. In addition, the references do not teach that any amount of active material can be used in the plates. For example, the Kitch electrode is prepared and divided into equivalent sections (col. 7, lines 1-15.) From this, no reasonable analysis can be made based on the declaration.

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Examiner Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mark Ruthkosky whose telephone number is 571-272-1291. The examiner can normally be reached on FLEX schedule (generally, Monday-Thursday from 9:00-6:30.) If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached at 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Mark Ruthkosky

Primary Patent Examiner

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Mark Ruthkosky
3/4/05